QUICK START GUIDE
MODEL 195Eg

Before You Begin

- The ESTeem Model 195Eg wireless Ethernet radio modem is compatible with many different applications. The most common application is to bridge two or more Ethernet devices or networks. This guide will demonstrate the basic configuration and testing of a pair of 195Eg's. For a more detailed information, please see the ESTeem Model 195Eg User's Manual.

- This guide assumes you have a working knowledge of Ethernet networking, TCP/IP protocol and how to identify and set the TCP/IP address on your computer.

- The 195Eg can be configured using any current web browser software such as Internet Explorer, Netscape or Mozilla.

- The following procedure will provide an initial communication link between two or more Model 195's for testing purposes. All the example commands listed in this guide can be adjusted to fit your communication network. Please consult the ESTeem Model 195Eg User's Manual for more details.

Unpack Contents

Each node in your ESTeem Model 195Eg's network may have different hardware components based upon the final installation location (i.e Outdoor, Indoor, Point-to-point or Muti-Point). Antenna types, cable lengths, power supplies may be different, but the following items will be required for basic setup:

Model 195Eg

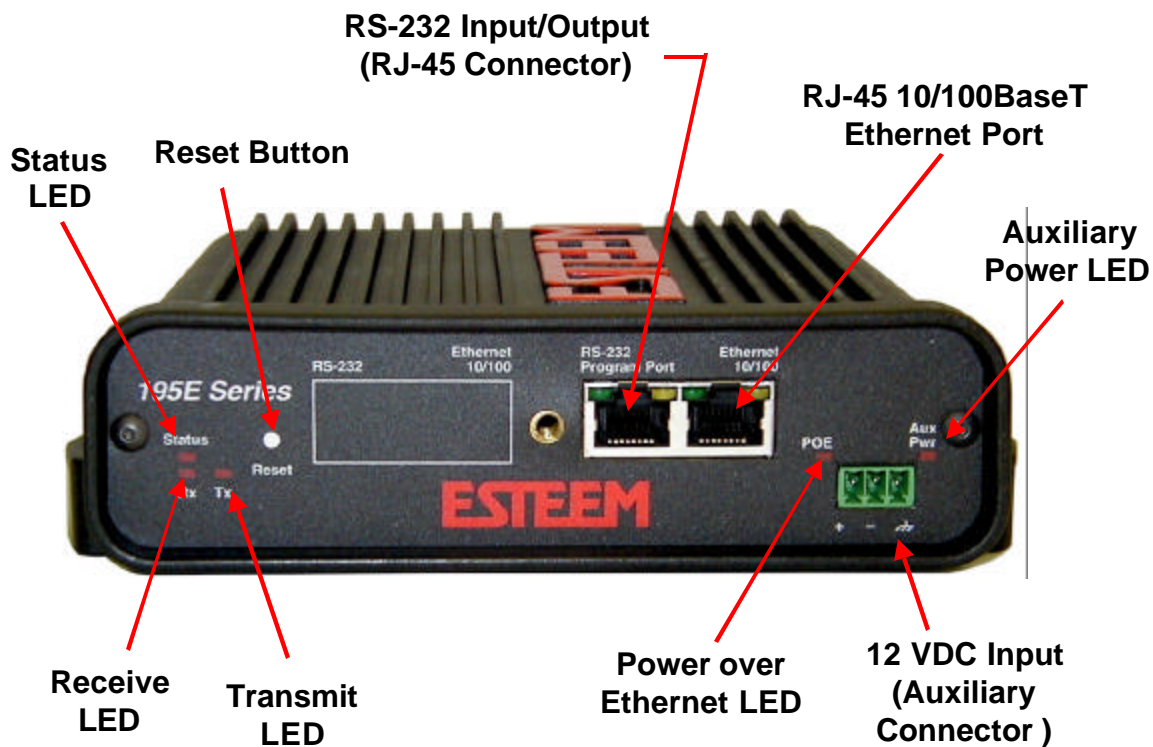AA109 Resource Disk

Antenna
(AA01S Displayed)

(2) Ethernet Cables

Power Supply
(AA175 Displayed)

Note: Your accessory model numbers may vary from the above, but you will need to locate each of above items to continue configuration.

Getting to Know the ESTeem Model 195Eg

Front Panel Overview

RS-232 Input/Output
(RJ-45 Connector)

RJ-45 10/100BaseT
Ethernet Port

Status
LED

Reset Button

Auxiliary
Power LED

Receive
LED

Transmit
LED

Power over
Ethernet LED

12 VDC Input
(Auxiliary
Connector)

Antenna Overview

Antenna Port A
(Single Receive Antenna)

Antenna Port B
(Dual Receive Antennas)

Antenna Connectors
(TNC Female-RP)

Begin Programming
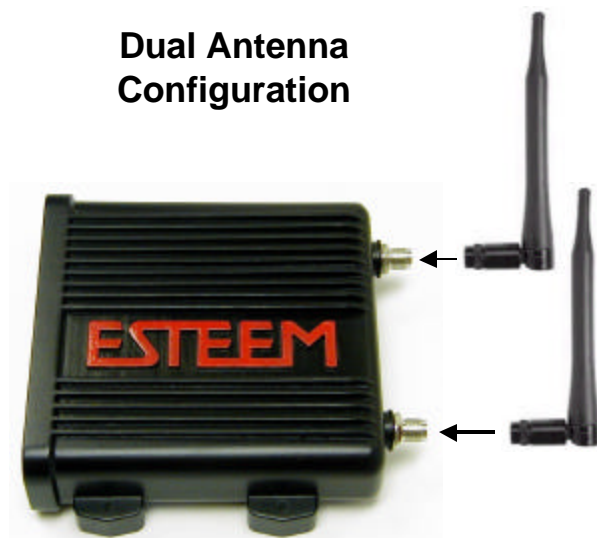
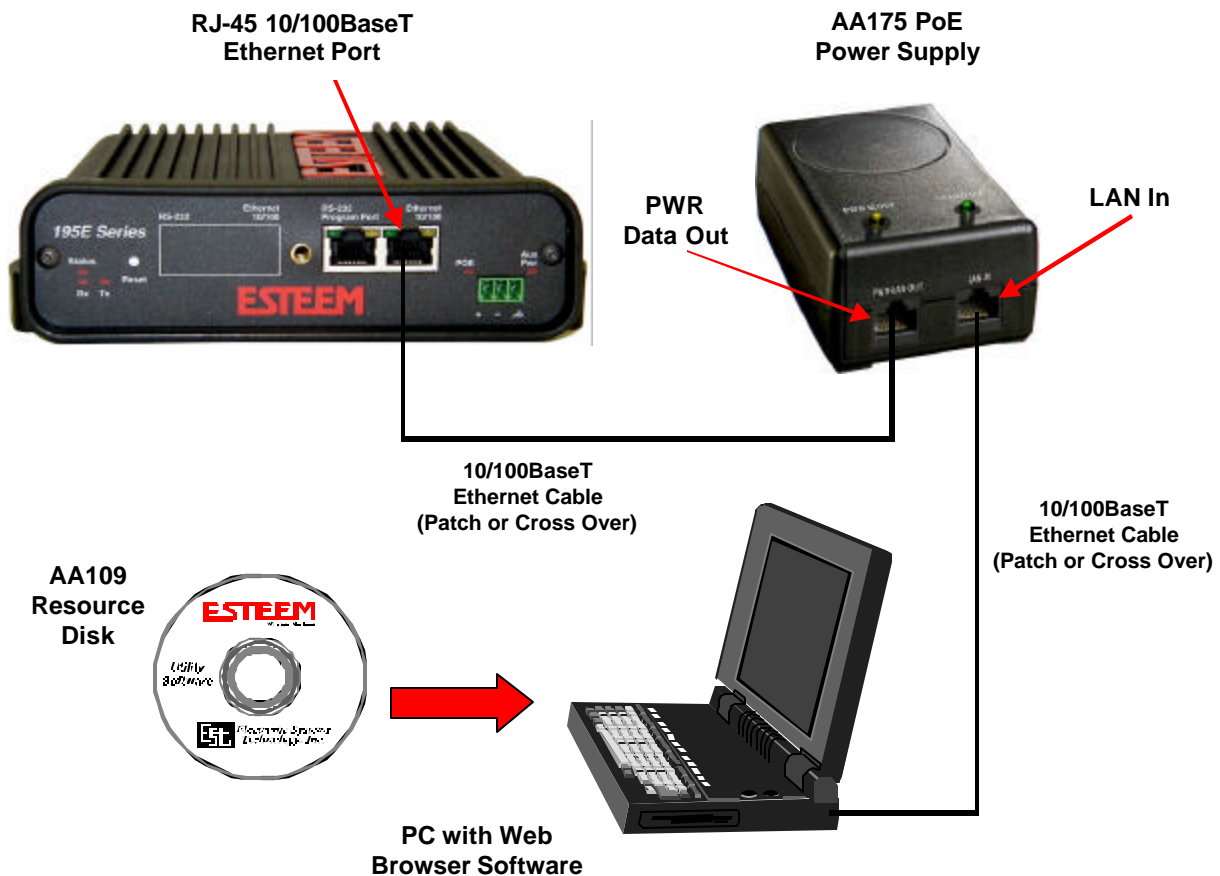1. Assemble the ESTeem Model 195Eg using the following:

Antenna Connections

Single Antenna Configuration	Dual Antenna Configuration
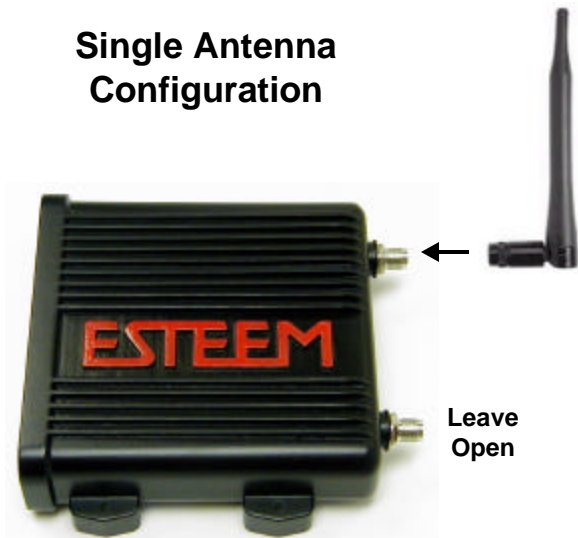
Leave
Open

Power and Data Connection

RJ-45 10/100BaseT
Ethernet Port

AA175 PoE
Power Supply

195E Series

PWR
Data Out

LAN In

10/100BaseT
Ethernet Cable
(Patch or Cross Over)

10/100BaseT
Ethernet Cable
(Patch or Cross Over)

AA109
Resource
Disk

PC with Web
Browser Software

2. The Model 195Eg will link to other Model 195Eg's on the network via the WLAN Media Access Control (MAC) address found on the bottom of the case. This MAC address is six hexadecimal digits separated by colons and is configured at the factory. Every MAC address in the world is unique and can not be changed. Complete the following chart to aid in your configuration:

Name	Serial Number	IP Address	Ethernet MAC	WLAN MAC
Example Modem 1	E-14001	172.16.8.101	00:04:3f:00:01:01	00:04:3f:00:01:02

3. Configuration of the Model 195Eg is completed through the product's internal web server. To access this configuration page, you will need to enter the 195Eg's IP address in your web browser. The IP address set at the factory is Class B (i.e. 172.16.x.x) address and is printed on the Quality Assurance sheet sent with each 195Eg. If the factory default address matches your network configuration, please proceed to **Using Setup,** otherwise continue to step 4.

4. **Install the ESTeem Discovery Utility**. The ESTeem Discovery Utility will allow you to configure the IP address on the Model 195Eg to match your network. Install the Discovery Utility on your computer by inserting the Resource Disk in your CD drive.
Note: The ESTeem Resource Disk is stand-alone copy of the ESTeem Web site (Figure 1). Navigation of the Resource Disk is as simple as using your web browser. All technical documentation, User's Manuals and the ESTeem Utility Program is available on the disk.

Place the ESTeem Utility CD in your CD-ROM drive. The CD will auto load the ESTeem main page
Note: If the page does not auto load, open your web browser and set your address line to D:\1_default.html (Where D: is the drive letter for your CD-ROM drive).

Figure 1 –ESTeem Resource Disk Main Page

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From the Main Page select <u>ESTeem Utilities</u> and click on <u>Download ESTeem Discovery Utility</u>.

Note: This program is saved in a compressed file format. Microsoft Windows XP® will open the file directly, but other operating systems will require a common compression program such as WinZip available for download at http://www.winzip.com

Double click on the 195EdiscoverySetup.exe file listed in the window to install the program.

5. **Set IP Address on the 195Eg**. Connect the Model 195Eg to your computer either direct to the Ethernet card or through a HUB/Switch using a CAT-5e Ethernet cable. The Ethernet port on the 195Eg supports Auto-Negotiation so either a patch cable or crossover cable will work. Open the ESTeem Discovery Program and press the <u>Discover Modems</u> button. The Model 195Eg will be displayed in the program by the Ethernet MAC address and Current IP Address (Figure 3).
Note: The SSID and Mode of Operation will be adjusted later in the configuration.
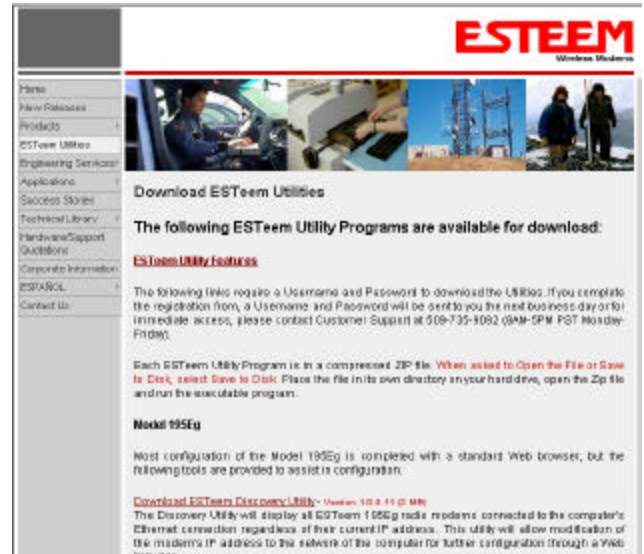
Figure 2- ESTeem Utility Download
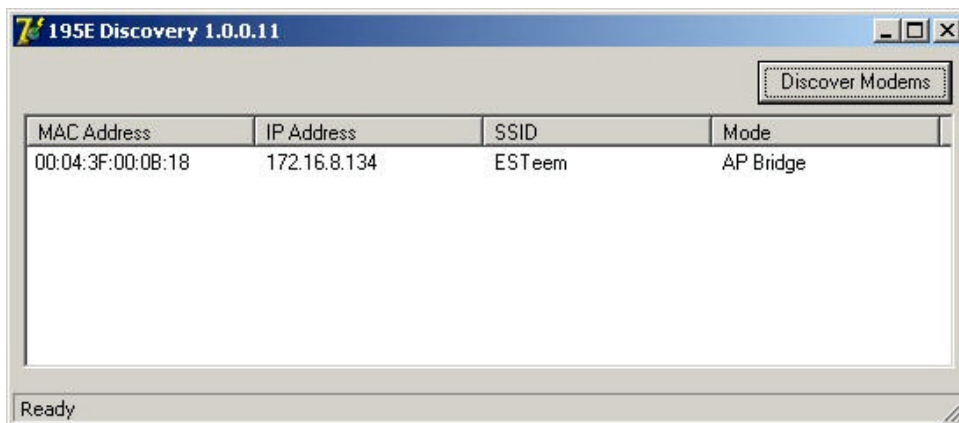
Figure 3 – Discovery Program Main Page

Double-click on the 195Eg you wish to program and the *Configure IP Address* window will be displayed (Figure 4). Enter an IP address and Subnet Mask for the 195Eg that matches your network subnet and press the <u>OK</u> button to save this to the ESTeem. You will receive notification that the Configuration was Successful and the 195Eg will reboot. Proceed to ESTeem Setup to continue configuration.
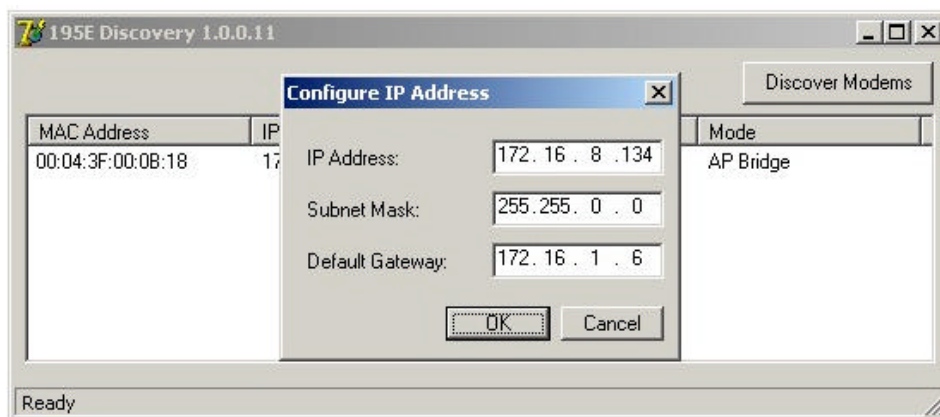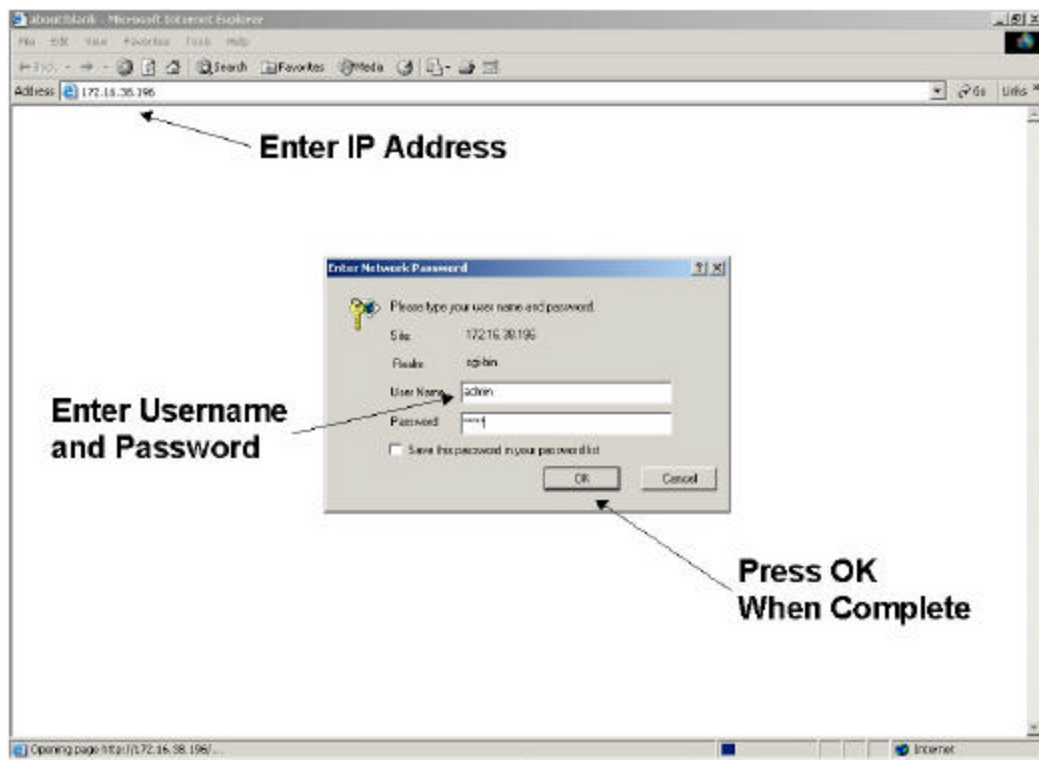

Figure 4 – Change IP Address Window

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Setup Programming

You should now be ready to configure the Model 195Eg through your web browser. Open the web browser program and enter the IP address of the ESTeem in the address line and press enter.

1. When prompted, enter **admin** for both the username and password and press the <u>OK</u> button.

Step 1 – Sign-In Screen

2. Select <u>Setup</u> on the top menu.

3. Press the drop-down menu and select <u>AP Bridge</u> and press the *Next* button.
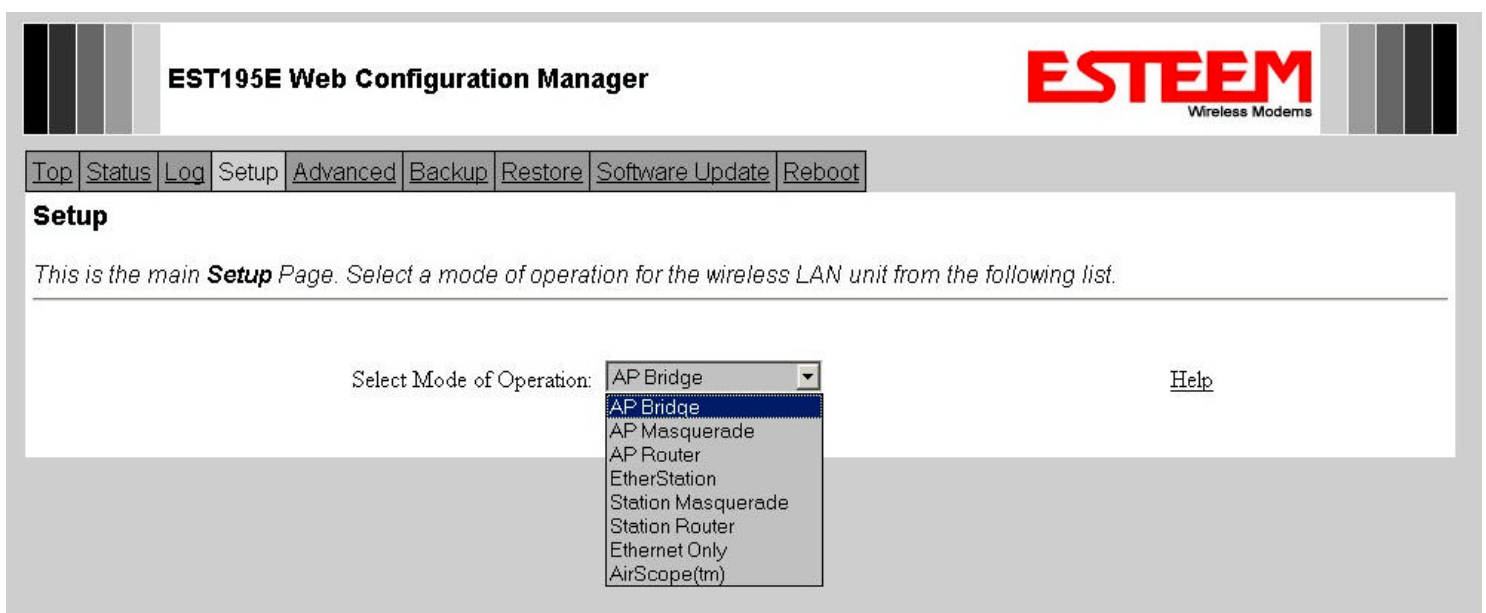
Step 3 – Select AP Bridge

4. Set the DHCP services to OFF and press the *Next* button.

EST195E Web Configuration Manager

ESTEEM
Wireless Modems

Top | Status | Log | Setup | Advanced | Backup | Restore | Software Update | Reboot

Setup

Select whether you wish to use DHCP client services or whether you wish configure a DHCP server. Selecting "Off" will take you through a manual setup of IP addresses as opposed to using DCHP services.

Selected mode of operation: AP Bridge

DHCP services: Off ⊙ Client ○ Server ○   Help

Previous   Next

Step 4 – Turn DHCP Off

5. Verify the IP address and netmask for the 195Eg (listed as **bridge** device) are correct press the *Next* button.

EST195E Web Configuration Manager

ESTEEM
Wireless Modems

Top | Status | Log | Setup | Advanced | Backup | Restore | Software Update | Reboot

Setup

Enter values for the following fields for manual IP setup of the **bridging** device.

Mode of operation: AP Bridge

DHCP Services: Off

Enter IP address for **bridge** device: 172.16.38.196   Help

Enter netmask for **bridge** device: 255.255.0.0   Help

Previous   Next

Step 5 – Verify IP Address

6. Enter in the Gateway address in the default route IP address block and any DNS information for the server. If this is not know or on a network without a Gateway, leave these items at factory default.

Step 6 – Enter Gateway Address

7. All 195Eg modems in the network must be have the exact same Service Set Identification (SSID). The default SSID is **ESTeem** and we will use this for demonstration. Enter the SSID as listed above and turn off the wireless security features by selecting the NO radial. Press the *Next* button to continue.

Note: It is recommended that security be used in all wireless applications. This procedure will forgo the security configuration for brevity. Please see the example applications and the security appendix for further information.

Step 7 – Enter SSID

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8. A warning that wireless security is not enabled will be displayed. Press the *Next* button to continue.

EST195E Web Configuration Manager

Top | Status | Log | Setup | Advanced | Backup | Restore | Software Update | Reboot

Setup

WARNING!
You have chosen to configure your system without any of the security features enabled on the wireless interface(s). This choice will expose your data to eavesdroppers and allow the general public to connect to your network. If you are sure this is what you want, press "Next". Otherwise press "Previous" and change your "wireless security" choice.

Previous   Next

<div align="right">

Step 8 – Security Warning Screen

</div>

9. Configure the repeater peer list by selecting Enable the repeater capability radial to YES. Using the chart created in the **Begin Programming** section of this guide, enter the Wireless MAC (WLAN MAC) address of the opposite 195Eg (the 195Eg this unit you are programming will communicate with) in the Peer 1 – MAC Addr field (Below). Leave the Priority and Cost settings at the default values and change the Enable Link radial to YES. Press the *Next* button.

Example Addresses				
Name	**Serial Number**	**IP Address**	**Ethernet MAC**	**WLAN MAC**
195Eg We Are Programming	E-14096	172.16.38.186	00:04:3f:00:01:01	00:04:3f:00:01:02
Opposite 195Eg We Will Create Wireless Link	E-14034	172.16.38.134	00:04:3F:00:0B:18	00:04:3F:00:0B:1A

<div align="right">

Step 9 – Configure Peer Table

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10. All Model 195Egs on the network must be on the same radio channel, representing a particular frequency. If a particular channel has not been assigned for use, leave the 195Eg at a default value of **6** and press the *Next* button.

11. Press the *Commit Changes* button and the modem will save all the changes made and reboot. The reboot time is approximately 1 minute to be ready for operation.

Step 11 – Commit Changes

12. Complete all steps in this **Setup Programming** section for the other Model 195Eg's you will be testing before moving on the Testing Communication section.

Testing Communication Link

After you have configured at least two of the Model 195Eg wireless Ethernet modems for operation, you can verify communication with each the following steps:

Status Light – The quickest source of link status is to view the Status Light on the face of the 195Eg. If the Status light is solid, the Model 195Eg has a connection to another Model 195Eg listed in the Peer Table.

Status Screen/Peer Table – To view further information on the status of the communication link (such as connection speed, signal strength and last update time) you can open the Status Screen from the Web Interface. After press the Status tab at the top of the screen the Status: Summary will be displayed showing the status of all ports and memory in the 195Eg. Under the Wireless Status heading click on the View Peer Table (Figure 5). The Peer Table will list all other 802.11b or 802.11g wireless activity seen by the 195Eg and how it is classified.
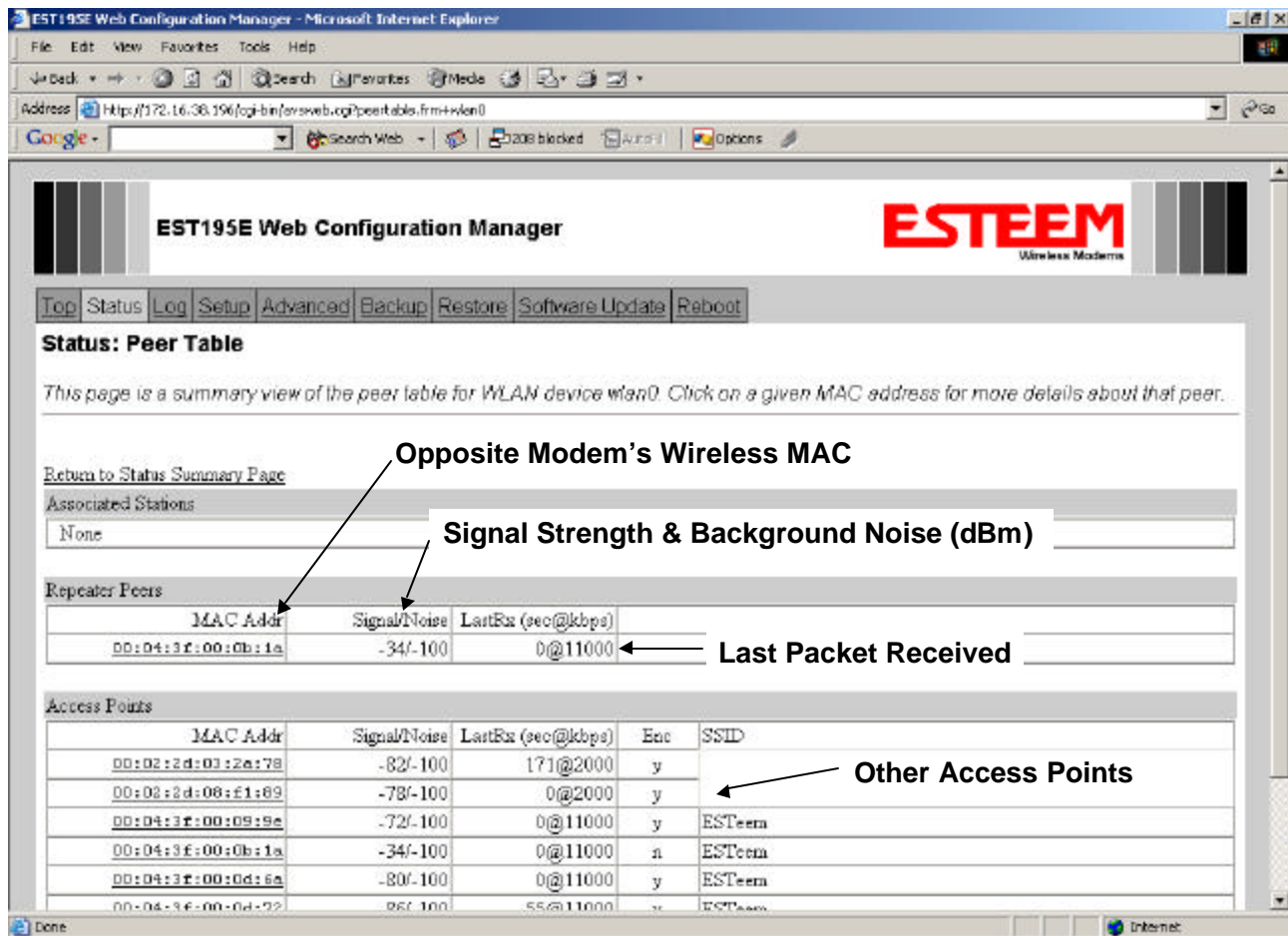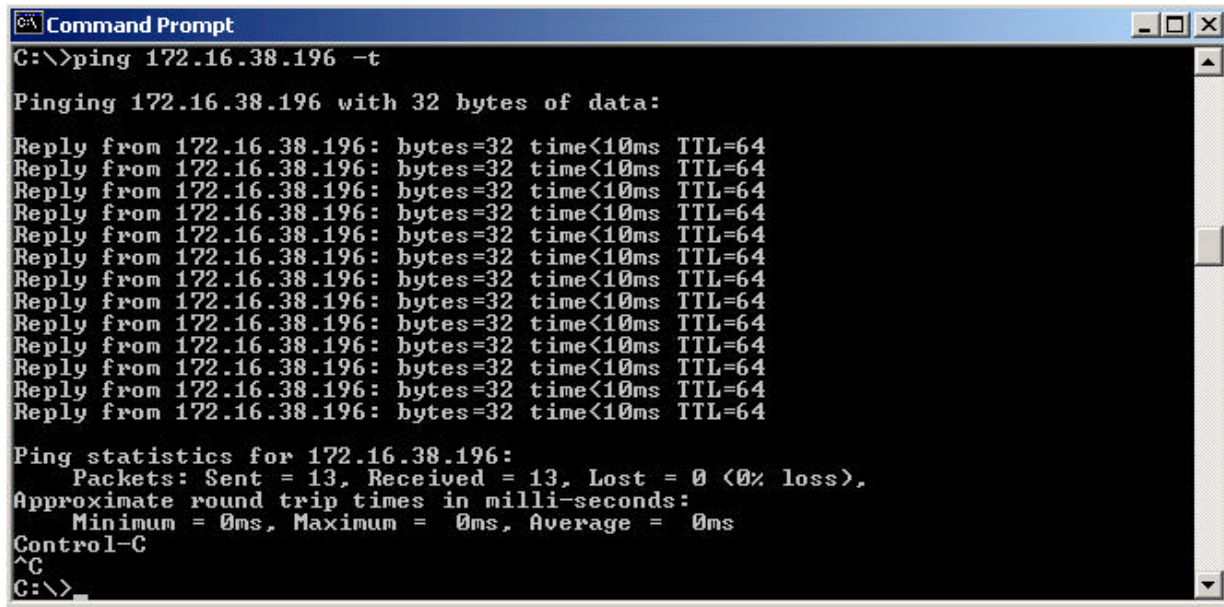

Figure 5 – Repeater Peer Table

Find the opposite 195Eg in the Repeater Peers list and information such as signal strength (in dBm), background noise (in dBm), and time/speed of last data packet will be displayed.

Note: *The data rate displayed is not necessarily indicative of the RF data rate between the ESTeems. The rate show in the Repeater Peer table will be the last RF packet, which could consist of either data, repeater beacon or network probes. For a detailed analysis on the data rate, please consult the ESTeem User's manual.*

Ping Testing – The easiest method for testing the efficiency of data flow between the ESTeems is to conduct a Ping test to the opposite modem's IP address. This will test all links in the Ethernet bridge.

```
Command Prompt                                                    _ □ ×
C:\>ping 172.16.38.196 -t

Pinging 172.16.38.196 with 32 bytes of data:

Reply from 172.16.38.196: bytes=32 time<10ms TTL=64
Reply from 172.16.38.196: bytes=32 time<10ms TTL=64
Reply from 172.16.38.196: bytes=32 time<10ms TTL=64
Reply from 172.16.38.196: bytes=32 time<10ms TTL=64
Reply from 172.16.38.196: bytes=32 time<10ms TTL=64
Reply from 172.16.38.196: bytes=32 time<10ms TTL=64
Reply from 172.16.38.196: bytes=32 time<10ms TTL=64
Reply from 172.16.38.196: bytes=32 time<10ms TTL=64
Reply from 172.16.38.196: bytes=32 time<10ms TTL=64
Reply from 172.16.38.196: bytes=32 time<10ms TTL=64
Reply from 172.16.38.196: bytes=32 time<10ms TTL=64
Reply from 172.16.38.196: bytes=32 time<10ms TTL=64
Reply from 172.16.38.196: bytes=32 time<10ms TTL=64

Ping statistics for 172.16.38.196:
    Packets: Sent = 13, Received = 13, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
Control-C
^C
C:\>
```

Technical Support

User's Manual and Technical Documentation
http://www.esteem.com

E-Mail Support
Support@esteem.com

Phone Support (8AM to 5PM PST Monday-Friday)
509-735-9092